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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/707,653

12/30/2003

Gavin M. Hall

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SUTHERLAND ASBILL & BRENNAN LLP  
999 PEACHTREE STREET, N.E.  
ATLANTA, GA 30309

EXAMINER

CASAREGOLA, LOUIS J

ART UNIT

PAPER NUMBER

3746

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	Application No. 10/707,653	Applicant(s) HALL ET AL.	
	Examiner Louis J. Casaregola	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

***Claim Rejections - 35 USC 112***

Claims 1-20 are rejected under 35 USC 112, first paragraph, as drawn to an invention that is not described in such full, clear, concise and exact terms as to enable any person skilled in the art to make and use the same.

The invention in this case is a method of operating a gas turbine engine which uses both gas and liquid fuels, and several of the claims require a switch between the fuels; see claims 3, 9, 11, etc. As shown in Figure 1, the preferred embodiment includes a gas fuel supply system 18, a liquid fuel supply system 20, and a gas turbine combustion chamber 12 with fuel nozzles 52. While both of the fuel systems are intended to supply fuel to the combustion chamber, it is not seen how the disclosed embodiment provides a flow path that connects gas fuel system 18 with fuel nozzles 52. Gas fuel system 18 and liquid fuel system 20 are both shown as communicating with nozzles 52 via valve 48. This valve appears to be a two position valve that merely opens or closes the flow path defined by lines 28 and 50 between the liquid fuel system and the nozzles. It is not seen how any manipulation of valve 48 would establish a flow path that allows the gas fuel in system 18 to actually reach fuel nozzles 52. The disclosure in this case is thus considered inadequate with respect to gas fuel operation of the present invention.

It is additionally pointed out that a method claim having only a single step is improper under §112, first paragraph, for the same reason as an apparatus claim

having only a single means; see MPEP 2164.08(a). In the present case, at least claim 1 appears to recite a method having only a single step. Claim 1 is consequently rejected under §112, first paragraph, as a single step claim.

***Claim Rejections - 35 USC 102 & 103***

Claims 1, 2 and 8 are rejected under 35 USC 102(b) or 103(a) as being anticipated by or unpatentable over Dobbeling et al.

The broadly claimed method in this case reads on the operation of conventional gas turbine fuel systems of the type disclosed by Dobbeling, and Doebebeling's system, like the claimed invention, is specifically intended to prevent liquid fuel coking as indicated, for example, by the abstract. Attention is called to the turbine fuel system shown in Doebebeling's Figure 1; note that liquid fuel supplied through line 12 to combustor nozzle 11 is purged from the system at shutdown with a flushing fluid supplied via line 13, and the flushing fluid may be nitrogen; see column 5, lines 41-44. Moreover, Doebebeling's purge operation, as described in the section between column 4, line 20 and column 5, line 36, will necessarily cause the flushing fluid (nitrogen) to displace a portion of liquid fuel and separate any remaining liquid fuel (e.g. fuel in leakage tank 31) from the fuel supply line leading to the combustor nozzle. It is additionally pointed out that the steps involving a valve or valves in claims 2 and 8 are sufficiently broad to read

on the operation of a number of Doebbeling's various valves including valves 25, 27, 28, etc.

It is further noted that while claims 1, 2 and 8 mention gas and liquid fuels, none of the claimed method steps specifically involves the use of a gas fuel, hence, the operation of Doebbeling's liquid fuel system is considered sufficient to anticipate the claimed method. Even if the claimed method were narrowly interpreted as requiring a gas fuel capability, however, this method would still be unpatentable over Doebbeling. Fuel systems having access to both liquid and gas fuels are well known in the combustion turbine field as indicated, for example, by the background section of applicants' own specification; see paragraph 0002. It would have been obvious to apply Doebbing's fuel purge concept to any such liquid and gas fuel system since a fuel purge would still perform its normal and useful anticoking function whenever the system operates with liquid fuel.

#### ***Additional References***

Schutz and Reddy are cited as disclosing further pertinent examples of combustion systems with liquid fuel purge features.

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L. J. Casaregola  
571-272-4826 (M-F; 7:30-4:00)  
571-273-8300 FAX  
April 16, 2007

If repeated attempts to reach the examiner by telephone are unsuccessful, the art unit supervisor, Anthony Stashick, can be reached at 571-272-4561.

Information regarding the status of this application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR, and status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).